

IN THE CLAIMS:

Please amend the claims as shown below. The claims, as pending in the subject application, read as follows:

1. (Currently Amended) An image processing apparatus, comprising:  
input means for inputting multivalued image information;  
conversion means for converting the input multivalued image information  
into first data representing a number of print dots for each pixel of the image;  
generation means for generating second data representing the total number  
of print dots in each region made up of a plurality of pixels, based on the first data;  
a memory for storing the second data generated by said generation means;  
and

print dot layout determination means for inputting from said memory a  
plurality of the second data comprising the second data of a region of interest and the  
second data of at least one region around the region of interest, and determining a print dot  
layout in the region of interest in accordance with the plurality of the second data,

wherein said print dot layout determination means concentrates dots of the  
print dot layout in the region of interest at the center of the region in a case where the total  
numbers of print dots in the regions around the region of interest are small and the total  
number of dots in the region of interest is small, distributes dots of the print dot layout to  
the right and left sides in the region of interest in a case where the total numbers of print  
dots in the regions around the region of interest are large and the total number of dots in the  
region of interest is small, and shifts dots of the print dot layout in the region of interest to  
a region around the region of interest, which has more large number of dots than the other

region around the region of interest in a case where a difference between the total numbers of print dots in the regions around the region of interest is large distributes dots of the print dot layout in the region of interest in a main scanning direction in the case that a difference between the total number of print dots in one side region of the region of the interest and the total number of print dots in another side region of the region of the interest is small and the total number of print dots in the region of interest is small, and wherein said print dot layout determination means concentrates dots of the print dot layout in the region of interest at the center of the region in the case that the difference is small and the total number of print dots in the region of interest is large.

2. (Canceled)

3. (Previously Presented) The apparatus according to Claim 1, wherein, when the image is to be rotated, said generation means generates the second data for print dots for each of different regions in accordance with a rotational angle, before the rotation.

4. (Previously Presented) The apparatus according to Claim 3, wherein said generation means comprises:

first generation means for generating the second data in a region made up of a predetermined number of successive pixels in a main scanning direction; and

second generation means for generating the second data in a region made up of a predetermined number of successive pixels in a subscanning direction,

and said generation means outputs:

when an image is not rotated, the second data generated by said first generation means, directly,

when an image is rotated through 180°, the second data generated by said first generation means, in an inverse bit order,

when an image is rotated through 90°, the second data generated by said second generation means, directly, and

when an image is rotated through 270°, the second data generated by said second generation means, in an inverse bit order.

5. (Original) The apparatus according to Claim 1, further comprising image printing means for printing an image on a printing medium in accordance with the print dot layout output from said print dot layout determination means.

6. (Currently Amended) An image processing method, comprising the steps of:

an input step of inputting multivalued image information;

a conversion step of converting the input multivalued image information into first data representing the number of print dots for each pixel of the image;

a generation step of generating second data representing the total number of print dots in each region made up of a plurality of pixels, based on the first data;

a memorizing step of storing the second data generated by said generation means in a memory; and

a print dot layout determination step of inputting from said memory a plurality of the second data comprising the second data of a region of interest and the

second data of a least one region around the region of interest, and determining a print dot layout in the region of interest in accordance with the plurality of the second data.,

wherein said print dot layout determination step concentrates dots of the print dot layout in the region of interest at the center of the region in a case where the total numbers of print dots in the regions around the region of interest are small and the total number of dots in the region of interest is small, distributes dots of the print dot layout to the right and left sides in the region of interest in a case where the total numbers of print dots in the regions around the region of interest are large and the total number of dots in the region of interest is small, and shifts dots of the print dot layout in the region of interest to a region around the region of interest, which has more large number of dots than the other region around the region of interest in a case where a difference between the total numbers of print dots in the regions around the region of interest is large distributes dots of the print dot layout in the region of interest in a main scanning direction in the case that a difference between the total number of print dots in one side region of the region of the interest and the total number of print dots in another side region of the region of the interest is small and the total number of print dots in the region of interest is small;

and wherein said print dot layout determination step concentrates dots of the print dot layout in the region of interest at the center of the region in the case that the difference is small and the total number of print dots in the region of interest is large.

7. (Previously Presented) The image processing method according to Claim 6, wherein, when the image is to be rotated, the generating step generates the second data for print dots for each of different regions in accordance with a rotational angle, before the rotation.

8. (Previously Presented) The method according to Claim 7, wherein the generation step comprises:

a first generation step of generating the second data in a region made up of a predetermined number of successive pixels in a main scanning direction; and

a second generation step of generating the second data in a region made up of a predetermined number of successive pixels in a subscanning direction,

and said generating step outputs,

when an image is not rotated, the second data generated in the first generation step, directly,

when an image is rotated through 180°, the second data generated in the first generation step, in an inverse bit order,

when an image is rotated through 90°, the second data generated in the second generation step, directly, and

when an image is rotated through 270°, the second data generated in the second generation step, in an inverse bit order.

9. (Currently Amended) A computer-readable storage medium which stores a computer readable program for an image processing method, the program comprising the steps of:

an input step of inputting multivalued image information;

a conversion step of converting the input multivalued image information into first data representing the number of print dots for each pixel of the image;

a generation step of generating second data representing the total number of print dots in each region made up of a plurality of pixels, based on the first data;

a memorizing step of storing the second data generated by said generating step in a memory; and

a print dot layout determination step of inputting from the memory a plurality of the second data, comprising the second data of a region of interest and the second data of at least one region around the region of interest, and determining a print dot layout in the region of interest in accordance with the plurality of the second data,

wherein said print dot layout determination step concentrates dots of the print dot layout in the region of interest at the center of the region in a case where the total numbers of print dots in the regions around the region of interest are small and the total number of dots in the region of interest is small, distributes dots of the print dot layout to the right and left sides in the region of interest in a case where the total numbers of print dots in the regions around the region of interest are large and the total number of dots in the region of interest is small, and shifts dots of the print dot layout in the region of interest to a region around the region of interest, which has more large number of dots than the other region around the region of interest in a case where a difference between the total numbers of print dots in the regions around the region of interest is large distributes dots of the print dot layout in the region of interest in a main scanning direction, in the case that a difference between the total number of print dots in one side region of the region of interest and the total number of print dots in another side region of the region of interest is small and the total number of print dots in the region of interest is small;

and wherein said print dot layout determination step concentrates dots of the print dot layout in the region of interest at the center of the region in the case that the difference is small and the total number of print dots in the region of interest is large.

10. (Cancelled).

11. (Cancelled).